



***Corynoneura* Winnertz from East Asia, with a systematic review of the genus (Diptera: Chironomidae: Orthocladiinae)**

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Table of contents

Abstract	2
Introduction	2
Methods and material	2
Systematics	3
<i>Corynoneura</i> Winnertz 1846	3
Phylogenetic analysis	3
Review of species	6
<i>Corynoneura arctica</i> Kieffer	6
<i>Corynoneura confidens</i> sp. n.	6
<i>Corynoneura cylindricauda</i> sp. n.	8
<i>Corynoneura edwardsi</i> Brundin	9
<i>Corynoneura fujiundecima</i> Sasa	10
<i>Corynoneura ferelobatus</i> Sublette et Sasa	10
<i>Corynoneura gratias</i> Schlee	12
<i>Corynoneura inawapequea</i> Sasa, Kitami et Suzuki	12
<i>Corynoneura inefligiata</i> sp. n.	13
<i>Corynoneura kibunelata</i> Sasa	15
<i>Corynoneura kibunespinosa</i> Sasa	16
<i>Corynoneura kisogawa</i> Sasa et Kondo	19
<i>Corynoneura korema</i> sp. n.	19
<i>Corynoneura latusatra</i> sp. n.	21
<i>Corynoneura lobata</i> Edwards	23
<i>Corynoneura macdonaldi</i> sp. n.	23
<i>Corynoneura medicina</i> sp. n.	25
<i>Corynoneura nankaiensis</i> sp. n.	27
<i>Corynoneura prominens</i> sp. n.	28
<i>Corynoneura scutellata</i> Winnertz	30
<i>Corynoneura seiryuresea</i> Sasa, Suzuki et Sakai	32
<i>Corynoneura sorachibecea</i> Sasa et Suzuki	32
<i>Corynoneura tokaraquea</i> Sasa et Suzuki	33
<i>Corynoneura tokaraquerea</i> Sasa et Suzuki	34
<i>Corynoneura yoshimurai</i> Tokunaga	36
Key to the males of <i>Corynoneura</i> Winnertz	36
Acknowledgements	39
References	39
Appendix 1 Morphological characters and states used in phylogenetic analysis.	42
Appendix 2 Morphological characters states matrix	44

Abstract

Nine new species of *Corynoneura* Winnertz, *C. confidens* sp. n., *C. cylindricauda* sp. n., *C. inefligiata* sp. n., *C. korema* sp. n., *C. latusatra* sp. n., *C. macdonaldi* sp. n., *C. medicina* sp. n., *C. nankaiensis* sp. n. and *C. prominens* sp. n. are described and illustrated as males. *C. arctica* Kieffer, *C. edwardsi* Brundin, *C. ferelobatus* Sublette et Sasa, *C. gratias* Schlee, *C. lobata* Edwards, *C. scutellata* Winnertz and *C. yoshimurai* Tokunaga are classified based on Chinese specimen. Ten Japanese species: *C. fujiundecima* Sasa, *C. ginzanquinta* Sasa et Suzuki, *C. inawapequea* Sasa, Kitami et Suzuki, *C. kibunelata* Sasa, *C. kibunespinosa* Sasa, *C. kisogawa* Sasa et Kondo, *C. seiryuresea* Sasa, Suzuki et Sakai, *C. sorachibecea* Sasa et Suzuki, *C. tokarapequea* Sasa et Suzuki, *C. tokaraquerea* Sasa et Suzuki are reexamined based on the holotypes. *C. ginzanquinta* Sasa et Suzuki is transferred to the genus *Thienemanniella* Kieffer. A preliminary estimate of the phylogenetic relationships of the sufficiently known males is given. A key to the sufficiently known males of *Corynoneura* is provided.

Key words: Chironomidae, Orthocladiinae, *Corynoneura*, key, new species, phylogeny, East Asia

Introduction

Corynoneura Winnertz is world-wide in distribution with many undescribed species. *Corynoneura*, *Thienemanniella* Kieffer and a few recently described genera are the only chironomids in which the radial sector is retracted, swollen and fused with costa apically, forming a thick clavus terminating at or before the midpoint of the wing. The larvae also are distinctive by having the antenna at least as long as the head capsule and in having only 4 antennal segments. The larvae are found in nearly all types of aquatic habitats from standing water in ditches to fast flowing mountain streams. Because of their small size they have been frequently overlooked and their distribution under-recorded. The larvae of both *Corynoneura* and *Thienemanniella* are often found in fissures in submerged stones in fast flowing waters.

Winnertz (1846) established the genus *Corynoneura*, with *Corynoneura scutellata* Winnertz, 1846 as the type species. So far 58 species have been recognized. Thirty-eight species are recorded from the Palaearctic Region, 9 from the Nearctic Region, 3 from the Neotropical Region, 16 from the Oriental Region, 4 from the Afrotropical Region and 3 from the Australasian Region (Ashe & Cranston 1990; Boesel & Winner 1980; Cranston *et al.* 1989; Cranston & Martin 1989; Freeman 1953, 1961; Freeman & Cranston 1980; Hazra *et al.* 2003; Hirvenoja & Hirvenoja 1988; Makarchenko *et al.* 2005; Makarchenko & Makarchenko 2006; Schlee 1968b; Singh & Maheshwari 1987; Sublette & Sasa 1994; Tokunaga 1936; Tuiskunen 1983; Wang 2000; Yamamoto 2004).

Prior to this study 29 species of the genus had been reported from East Asia: 6 from China, 20 from Japan, 2 from Mongolia and 13 from the Russian Far East (Makarchenko *et al.* 2005; Makarchenko & Makarchenko 2006; Sasa 1979, 1985, 1989; Sasa *et al.* 1988; Sasa *et al.* 1999; Sasa & Kikuchi 1995; Sasa & Kondo 1993; Sasa & Suzuki 1995, 1998, 2000a, 2000b, 2001; Sasa *et al.* 1998; Wang 2000; Yamamoto 2004).

Based on the holotype *C. ginzanquinta* Sasa et Suzuki from Japan is transferred to *Thienemanniella* Kieffer. It will be redescribed elsewhere. In addition, 9 new species from China are described below based on material at Nankai University. Accordingly, there presently are 37 species known for the East Asia Region.

Methods and material

Morphological nomenclature follows Sæther (1980) with additions and corrections given by Sæther (1990). Material examined was mounted on slides following the procedure outlined by Sæther (1969). Measurements are given as ranges, followed by the mean when more than two specimens were measured, followed by the number (n) of specimens measured. In the figures of the male genitalia, the dorsal view is shown to the left, the ventral view to the right.